

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

### REMARKS

Applicants respectfully request the Examiner to reconsider and again examine the claims in view of the following remarks.

Claims 1-22 and 24-36 are pending in the application. Claims 6-9, 12-14, 18-22, 24, 25, and 29 are allowed. Claims 1-5, 10, 11, 15-17, 23, 26-28, and 30-36 are rejected. Claim 23 is cancelled herein without prejudice.

As an initial matter, Applicants cannot identify that certain signed and initialed information disclosure forms (PTO Form 1449) have been returned as identified below. Applicants respectfully request that the Examiner consider the art cited in the below-identified information disclosure statements (if not already done) and provide the signed and initialed information disclosure forms as indicated.

- 1) Submitted with certificate of mailing dated June 14, 2001
- 2) Submitted with certificate of mailing dated March 14, 2001

Applicants also note that the formal drawings submitted on November 12, 2002 have not been indicated as being approved by the Examiner. Approval of the drawings is respectfully requested.

#### The Rejections under 35 U.S.C. §102(b)

The Examiner rejects Claim 30 under 35 U.S.C. §102(b) as being anticipated by Hassett et al. (U.S. Patent number 5,289,183).

Applicants submit that Claim 30 is patentably distinct over Hassett et al, since the cited reference neither describes nor suggests "... a correlation processor, wherein said uniquely identified data are correlated to obtain a count of overdue vehicles and early arriving vehicles..." as set forth in Claim 30. With this particular arrangement, the present invention

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

provides a roadway incident detection in accordance with the claimed count of the overdue and early arriving vehicles.

In contrast, Hassett et al. provides a traffic monitoring system that determines, by way of vehicle transponders, a variety of types of information. Referring to FIG. 1 of Hassett et al, the system of Hassett et al. provides a variety of information associated with vehicle transponders 102'-116' located in vehicles 102-116, respectively, which are in communication with roadway transceiver units 118-124. For example, according to Hassett et al. at column 4, lines 29-35, the information

"...may also be used by the vehicle transponder to perform calculations to determine parameters, such as current vehicle speed, for broadcast back to that roadside transceiver or to a downstream transceiver, or for communication to the vehicle driver by way of the audio/visual interface included in the vehicle transponder."

Hassett et al. also describes, at column 5, lines 6-9:

"According to a first feature of the invention, as a vehicle 116, equipped with a vehicle transponder 116', enters a roadway 126, it passes a transceiver 124. That transceiver 124 broadcasts, to the vehicle transponder 116', a reference designation which denotes the point of entry onto the roadway 126. Upon exiting the roadway 126, a second transceiver, for example, 125 broadcasts an instruction to the vehicle transponder 116', to transmit back to the second transceiver 125, the stored information pertaining to the point of entry."

Furthermore, Hassett et al. describes at column 4, line 66 to column 5, line 9:

"According to another feature of the invention, as vehicles 102-116 traverse the roadway 126 they pass roadway transponder 124 that communicates time and date information to the vehicle transponders 102'-116'. The vehicle transponders store this information in their internal memories. Downstream the vehicles 102-106 pass other roadway transceivers 118 and 120. According to one embodiment, the subsequent transceivers 118 and 120 also transmit time and date information. The vehicle transponders 102'-116' receive this subsequent time and date information and uses it to internally calculate individual vehicle speeds. The vehicle transponders then relay the speed information back to the network management computer 128 upon interrogation by one of the subsequent roadway transceivers 118 and 120. In an alternate embodiment, a subsequent transceiver 120 signals the vehicle transponders 102'-116' to transmit the original time and date information that they received from the upstream transceiver 124. "

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

Hassett et al. describes various types of information associated with the vehicle transceivers, including vehicle speed and times and dates of vehicle detections. However, Applicants submit that Hassett et al. neither describes nor suggests the claimed count of overdue vehicles and early arriving vehicles.

Accordingly, Applicants submit that Claim 30 is patentably distinct over Hassett et al.

In view of the above, Applicants submit that the rejection of Claim 30 under 35 U.S.C. §102(b) should be removed.

The Rejections under 35 U.S.C. §103(a)

Hassett et al. in View of Krause et al.

The Examiner rejects Claims 1-5, 10, 11, 15, 17, 23, and 26 under 35 U.S.C. §103(a) as being unpatentable over Hassett et al. in view of Krause et al. (U.S. Patent number 5,684,475). With regard to independent Claim 1, the Examiner asserts that Hassett et al. discloses a method for detecting incidents along a roadway comprising the claimed arranging and correlating, as set forth in Claim 1. The Examiner recognizes that Hassett et al. fails to disclose determining the number of vehicles potentially affected by the incident along the roadway and comparing the number of the vehicles potentially affected by the incident to a sample threshold. The Examiner asserts that the determining the number of vehicles potentially affected by the incident along the roadway and comparing the number of the vehicles potentially affected by incidents to a sample threshold are well known, as taught by Krause et al. The Examiner concludes that "...it would have been obvious to combine this well-known concept in the system of Hassett..."

As the Examiner is aware, and as directed by MPEP §2142, in order to establish a prima facie case of obviousness "...the prior art reference (or prior art references when combined) must teach or suggest all the claim limitations." Applicants respectfully submit that the Examiner has not met this burden in order to establish prima facie obviousness.

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

Applicants submit that independent Claim 1 is patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al., since the cited references neither describe nor suggest "... determining the number of vehicles potentially affected by incidents along the roadway; and comparing the number of vehicles potentially affected by incidents to a sample threshold," as set forth in Claim 1. With this particular arrangement, the present invention provides roadway incident detections.

The Examiner recognizes that Hassett et al. does not teach the claimed determining the number of vehicles potentially affected by incidents along the roadway and comparing the number of vehicles potentially affected by incidents to a sample threshold. Applicants submit that Krause et al. fails to overcome the deficiencies of Hassett et al. Krause et al. describes, in FIG. 1, a method for recognizing disruptions in road traffic having a beginning traffic sensor and an end traffic sensor. As best understood by the Applicants, the method of Krause et al. does not employ on-board vehicle transponders, but instead, the beginning traffic sensor and the end traffic sensor of Krause et al. can apparently detect vehicles across one or more travel lanes. As described by Krause (abstract),

"...a method for recognizing disruptions in road traffic within a road sector that is to be monitored at respective measurement cross-sections at the beginning and at the end of the sector, the number and the speed of the vehicles passing through the measurement cross-sections are continuously acquired as measured data, which are collected and compiled cyclically during finite measurement intervals to provide average values of the traffic flow and the speed, and are then evaluated. Each measurement cross-section thereby encompasses all lanes of traffic that can be used in one direction of travel."

Accordingly, Krause et al. does not uniquely identify a vehicle, but merely measures the speed of vehicles passing through a measurement cross-section and computes an average traffic flow and speed. Krause et al. does not identify the claimed number of vehicles potentially affected by incidents along the roadway. Accordingly, Krause et al. neither describes nor suggests the claimed determining the number of vehicles potentially affected by incidents along the roadway and comparing the number of vehicles potentially affected by incidents to a sample threshold.

As the Examiner is also aware, and as directed by MPEP §2142, in order to establish a prima facie case of obviousness "...there must be some suggestion or motivation, either in the

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." Applicants respectfully submit that the Examiner has not met this burden in order to establish prima facie obviousness. Applicants submit that neither of the references describe any motivation to modify one to include the other. Hassett et al. employs vehicle transceivers and Krause et al. does not. Hassett et al., having the vehicle transceivers, has no motivation to employ the beginning traffic sensor and end traffic sensor of Krause et al. Furthermore, Krause et al., using only the beginning traffic sensor and end traffic sensor, has no motivation to use vehicle transceivers as in Hassett et al., which are reflected in the claimed "...arranging a plurality of readers at intervals along a roadway for reading uniquely identified data from each of a plurality of vehicles."

In addition, applicants submit that Krause et al., having only the beginning traffic sensor and end traffic sensor, teaches away from a system such as described by Hassett et al., which uses vehicle transceivers. For example, at column 3, lines 46-50, Krause et al. states

"It is the object of the invention to suggest a method with which disruptions in road traffic can be recognized, independent of the traffic condition, with the smallest possible loss of time and with low investment in data processing and measuring technology."

In view of the above, Applicants submit that Claim 1 is patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al.

Claims 2-5, 10, 11, 15, 17, and 26 depend from and thus include the limitations of Claim 1. Thus, Applicants submit that Claims 2-5, 10, 11, 15, 17, and 26 are patentably distinct over the cited references at least for the reasons discussed above in conjunction with Claim 1.

Applicants submit that Claim 4 is further patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al., since the cited references neither describe nor suggest "... an expected vehicle travel time between two adjacent readers; and an expected arrival time of each of the plurality of vehicles at one of the plurality of readers," as set forth in

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

Claim 4. The Examiner asserts that Hassett et al. shows the claimed expected travel times at column 4, lines 19-43, where Hassett et al. states,

"Referring to FIG. 1, generally, vehicles 102-116, carrying vehicle transponders 102'-116' travel along the roadway 126. As each vehicle borne transponder 102'-116' enters the radio field radiated by the transmitter portion of a roadside transceiver, it decodes information packets transmitted to it by the roadside transceiver. The information packets can be of variable length. The information packets can include information to be rebroadcast, by the vehicle transponder, to a downstream roadside transceiver, such as identity and time/date of original point of entry. This information may also be used by the vehicle transponder to perform calculations to determine parameters, such as current vehicle speed, for broadcast back to that roadside transceiver or to a downstream transceiver, or for communication to the vehicle driver by way of the audio/visual interface included in the vehicle transponder. The information packets, can also contain information, being relayed to the driver by the network management computer 128, and pertaining to relevant traffic conditions.

As the vehicle continues traveling over the roadway, it encounters a plurality of periodically spaced roadway transceivers. Those transceivers also broadcast and receive information and can cause transactions of the type discussed above, to occur a subsequent time."

Contrary to the Examiner's assertion, Applicants can find no mention of the claimed expected travel times in Hassett et al.

Applicants submit that Claim 5 is further patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al., since the cited references neither describe nor suggest "...determining the number of vehicles potentially affected by an incident further comprises the step of determining the expected time for each of the plurality of vehicles to be detected by a particular one of the plurality of readers," as set forth in Claim 5.

The Examiner asserts that the claimed expected time can be found in FIG. 1, presumably of Krause et al. Krause et al. in FIG. 1 shows an "expected transit time." Applicants submit that the expected transit time of Krause et al. is merely an expected time for a vehicle to pass through a "measurement cross-section," which a relatively short distance is proximity to a beginning traffic sensor. Krause et al. neither describes nor suggests the claimed

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

determining the expected time for each of the plurality of vehicles to be detected by a particular one of the plurality of readers.

Applicants submit that Claim 10 is further patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al., since the cited references neither describe nor suggest "... detecting an incident in response to the number of each of the plurality of vehicles potentially affected by an incident exceeding the predetermined sample threshold," as set forth in Claim 10. The Examiner asserts that Krause teaches the claimed aspects at column 7, lines 34 to 40, where Krause states:

"A disruption message is triggered if the quantity  $BDQ_i$  exceeds a certain (for example, a threshold value dependent upon the traffic condition). The disruption message can be different, depending on the gravity of the disruption, i.e. the magnitude of  $BDQ_i$ , in order to urge the successive following vehicles to adopt a driving behavior appropriate for the special case."

The  $BDQ_i$  is the number of vehicles in a road sector between measurement cross sections. Therefore, Krause compares a number of vehicles on the road sector to a threshold, not the claimed number of each of the plurality of vehicles potentially affected by an incident exceeding the predetermined sample threshold.

Claim 23 is cancelled herein without prejudice.

Applicants submit that Claim 26 is further patentably distinct over Hassett et al., whether taken alone or in combination with Krause et al., since the cited references neither describe nor suggest "...suppressing the detection of an incident in a roadway segment where the number of vehicles exiting the segment of the roadway on an off-ramp over a predetermined interval of time exceeds a predetermined threshold," as set forth in Claim 26. The Examiner recognizes that that the claimed suppressing is not found in the references. The Examiner asserts that "...one skilled in the art would have readily known to suppress the detection as desired." Applicants respectfully disagree and use as support the Examiner's own patent search and cited references, which, the Examiner recognizes do not find a reference that teaches the claimed suppressing.

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

In view of the above, Applicants submit that the rejection of Claims 1-5, 10, 11, 15, 17, and 26 under 35 U.S.C. §103(a) should be removed.

In View of Hassett et al.

The Examiner rejects Claims 27-28 and 31-36 under 35 U.S.C. §103(a) as being unpatentable over Hassett et al. With regard to independent Claim 27, the Examiner asserts that Hassett teaches the claimed arranging, correlating, and detecting as set forth in Claim 27. The Examiner further asserts, "[p]robe readers are conventional in the art of detecting vehicles." The Examiner concludes that "...it would have been obvious to one skilled in the art to use probe readers in the combined system of Hassett and Krause as desired. A plurality of probe readers is used in this combined system."

As an initial matter, Applicants respectfully point out that this rejection is made only in view of Hassett et al., yet the Examiner refers to a combined system (Hassett et al. and Krause et al.) in her conclusions. Applicants will respond to this rejection as a rejection only in view of Hassett et al. as set forth by the Examiner.

Applicants submit that Claim 27 is patentably distinct over Hassett et al., since the cited reference neither describes nor suggests "... correlating the transponder readings from each of the plurality of vehicles and expected readings from each of the plurality of vehicles at more than one traffic probe reader," as set forth in Claim 27.

In contrast, Hassett et al. describes a plurality of vehicle transponders 102'-116' and a plurality of roadside transceivers 118-124. As described above, the roadside transceivers can share information to provide, for example, a time, and date of an original point of entry on a roadway. However, Applicants submit that the Hassett et al. fails to describe or suggest the claimed " correlating the transponder readings from each of the plurality of vehicles and expected readings from each of the plurality of vehicles at more than one traffic probe reader."

In view of the above, Applicants submit that Claim 27 is patentably distinct over Hassett et al.



Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

Claim 28 depends from and thus includes the limitations of Claim 27. Thus, Applicants submit that Claim 28 is patentably distinct over the cited reference at least for the reasons discussed above in conjunction with Claim 27.

For reasons discussed above in conjunction with Claim 30, Applicants submit that Claims 31-36 are patentably distinct over Hassett et al., since the cited reference neither describes nor suggests "...a correlation processor, wherein said uniquely identified data are correlated to obtain a count of overdue vehicles and early arriving vehicles...," as set forth in Claim 30 and as required by Claims 31-36.

In view of the above, Applicants submit that the rejection of Claims 27-28 and 31-36 under 35 U.S.C. §103(a) should be removed.

Hassett et al. in View of Krause et al. and Kamata

The Examiner rejects Claim 16 under 35 U.S.C. §103(a) as being unpatentable over Hassett et al. in view of Krause et al. and Kamata (U.S. Patent number 5,684,475). The Examiner recognizes that neither Hassett et al. nor Krause et al. disclose that the plurality of readers comprises a license plate reader. The Examiner relies upon Kamata as teaching a license plate reader. The Examiner concludes that "...it would have been obvious to one skilled in the art to use license plate readers in the combined system of Hassett and Krause..."

Applicants submit that Claim 16 is patentably distinct over Hassett, whether taken alone or in combination with Krause and Kamata, since the cited references neither describe nor suggest "... determining the number of vehicles potentially affected by incidents along the roadway; and comparing the number of vehicles potentially affected by incidents to a sample threshold," as set forth in Claim 1 and as required by Claim 16.

Hassett et al. and Krause et al. are discussed above. Applicants submit that Kamata fails to overcome the above deficiencies in Hassett et al. and Krause et al. Kamata merely describes license plate readers used in an automatic toll collection system.

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

In view of the above, Applicants submit that the rejection of Claim 16 under 35 U.S.C. §103(a) should be removed.

The Claim Objections

The Examiner objects to Claims 6-9, 12-14, 18-22, 24-25 and 29 as being dependent upon a rejected base claim, but indicates that Claims 6-9, 12-14, 18-22, 24-25 and 29 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

For the above reasons, Applicants submit that independent Claim 1, from which Claims 6-9, 12-14, 18-22, 24-25 and 29 depend, is patentably distinct over the cited references. Therefore, Applicants submit that Claims 6-9, 12-14, 18-22, 24-25, and 29 are allowable in their present dependent form.

In view of the above remarks, Applicants submit that Claims 1-22 and 24-36 and the entire case are in condition for allowance and should be sent to issue and such action is respectfully requested.

The Examiner is respectfully invited to telephone the undersigning attorney if there are any questions regarding this Response or this application.

Appl. No. 09/805,849  
Reply to Office Action of June 4, 2004

Docket No. RTN-100AUS

The Assistant Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 500845, including but not limited to, any charges for extensions of time under 37 C.F.R. §1.136.

Respectfully submitted,

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